The LTM®9004 (Direct Conversion) and LTM9005 (IF Sampling) μModule® receivers offer unprecedented integration for more compact, low power designs and dramatically faster time-to-market. Integrating the RF, signal filtering, gain stages and high-speed ADCs, these receivers eliminate time-consuming design, layout and component sourcing associated with high performance communication systems. With no performance compromise, they enable dense, multichannel macrocells or compact remote radio heads.

**Features**

- Fully Integrated RF-to-Digital Receivers
- 14-Bit, 125Mmps Low Power ADC
- Direct Conversion Architecture (LTM9004)
  - 700MHz to 2.7GHz RF Input Range
  - I/Q Demodulation & Dual ADC
  - 5V & 3V Supplies, 1.8W Total
- IF-Sampling Architecture (LTM9005)
  - 400MHz to 3.8GHz RF Input Range
  - 20MHz SAW Filter, 140MHz IF
  - 3.3V Supply, 1.3W Total
- 22mm × 15mm LGA Package

**LTM9004 Demo Board**
LTM9004 Block Diagram and Performance

<table>
<thead>
<tr>
<th>OPTION</th>
<th>FILTER CUTOFF</th>
<th>SIGNAL BANDWIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTM9004-AA</td>
<td>1.92MHz</td>
<td>3.84MHz (1-Carrier WCDMA)</td>
</tr>
<tr>
<td>LTM9004-AB</td>
<td>4.42MHz</td>
<td>8.84MHz (2-Carrier WCDMA)</td>
</tr>
<tr>
<td>LTM9004-AC</td>
<td>9.42MHz</td>
<td>18.84MHz (4-Carrier WCDMA)</td>
</tr>
<tr>
<td>LTM9004-AD</td>
<td>20MHz</td>
<td>40MHz</td>
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</tbody>
</table>

LTM9005 Block Diagram and Performance

<table>
<thead>
<tr>
<th>OPTION</th>
<th>FILTER CENTER</th>
<th>SIGNAL BANDWIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTM9005-AA</td>
<td>140MHz</td>
<td>16MHz</td>
</tr>
<tr>
<td>LTM9005-AB</td>
<td>140MHz</td>
<td>20MHz</td>
</tr>
</tbody>
</table>

µModule Receiver Features
- Ease of Use, Faster Time-to-Market
- Eliminates Most Challenges of Driving High Speed ADCs
- Integrates Key Components
- Simplifies Layout without Sacrificing Performance
- Provides System-Level Testing
- Dramatically Smaller and Simpler than Discrete Implementations
- Proven LTC Quality, Reliability and Service
- ECCN 5A991 - No Export License Required

Semi-Custom Options
The LTM9004 and LTM9005 are available in semi-custom options, subject to business approval. Changes are limited to filter configurations and the ADC speed and resolution where pin-compatible alternatives are available. Contact Linear Technology for details.